

CERCLA / WRDA: Integrated Feasibility Planning Process

- Establish Remedial Option Workgroup
 - Propose & consider Interim Remedial Measures
 - Develop preliminary CERCLA Feasibility Study alternatives
- Develop preliminary WRDA Feasibility Study alternatives: another workgroup?
- Integrate Feasibility alternatives as WRDA/CERCLA Alternatives
 - Establish integrated feasibility road map
 - Build criteria and weighting for multi-criteria decision analysis
 - Establish Integrated Planning Workgroup

Preliminary Feasibility Study Activities – Status Update

Lower Passaic River Restoration Project

April 6, 2005 Project Delivery Team Meeting

Objective of Preliminary Feasibility Study Activities

- To take an early look at remedial options and interim remedial measures in order to identify data needs and inform the investigation process.
- To solicit stakeholder input and build consensus on remedial action objectives, remedial options, and remedy selection criteria.

Outline

- Presentation of Example Remedial Action Objectives
- Preliminary Technology Screening
- Development of Preliminary Remedial Options
- Input to Investigation Program
- Interim Remedial Measures
- Heading towards Multi-Criteria Decision Analysis
- Next Steps for Preliminary Feasibility Study

Example Remedial Action Objectives

- Reduce cancer risks and non-cancer health hazards for people eating fish from the Lower Passaic River by reducing the concentration of COCs in fish and shellfish.
- Reduce the risks to ecological receptors by reducing the concentration of COCs in fish and shellfish.
- Reduce levels of COCs in sediments in order to reduce COC levels in river water that are above surface water ARARs.
- Reduce the inventory (mass) of COCs in sediments that are or may become bioavailable.
- Minimize the transport of COCs to other parts of the Estuary.
- ? Balance short-term impacts with long-term goals?
- ? Considerations for current and future resource use?

DREDGING

Dredging
Containment
Delivery
Dewatering
Water Treatment
Air/Odor Control
Decontamination
Transportation
Final Disposition

IN-SITU

Biological
Chemical
Physical

REMEDIAL TECHNOLOGIES

MNR

Assessment Tools
Monitoring Design

CAPPING

Materials
Placement Techniques

Development of Technology Screening Database

Welcome to the Sediment Remediation Technology Database.

Please select from one of the remedial technology classes below:

DREDGING

CAPPING

IN-SITU
REMEDICATION

MONITORED
NATURAL
RECOVERY

Technology Screening Database



Technology Screening Database

[Design
Considerations](#)

[Potential
Vendors](#)

SPECIALTY

DREDGING

HYDRAULIC

MECHANICAL

[Design
Considerations](#)

[Potential
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Example:

Mechanical Dredging

Potential Vendors

- Cable Arm
- Bean Environmental
- Caterpillar
- Great Lakes Dredge and Dock Co.
- IHC Holland
- Ballast Ham Dredging
- Dredging Supply Company
- Dredge Technology Corporation
- Royal Boskalis Westminster N.V.
- Conbar International
- Ellicott
- Dredging International/DEME
- Sevenson Environmental Services

www.cablearm.com



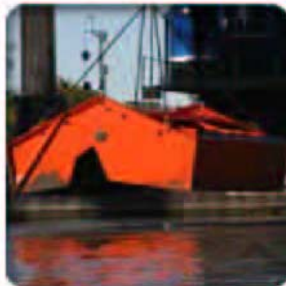
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Our ClamVision Software:



Environmental



Navigational



Bulk Material

Additional Resources:

Enjoy our environmental dredging video explains the features of our environmental clamshells or view our interactive product demo, originally distributed on CD-ROM.

- [Environmental Dredging Video](#)
- [Interactive Product Demo](#)
- [Cable Arm Clamshell Report](#)

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Definitions for Identifying Target Area Types

Surficial Contamination	HOT ↔ CONTAMINATED ↔ CLEAN
Subsurface Contamination	Concentration Basis or Mass Basis SUBSTANTIAL ↔ minimal
Stability	Erosive vs. Depositional

Preliminary Remedial Options

Target Area Type	Surficial Contamination	Subsurface Contamination	Stability	Potentially Feasible Remedial Options							
				Surficial Sediment				Deeper Sediment			
				Dredging	Capping	Insitu	MNR	Dredging	Capping	Insitu	MNR
I	Hot	Substantial	Erosive	X	X			X	X	X	X
II	Hot	Minimal	Erosive	X	X					X	X
III	Hot	Substantial	Depositional	X	X			X	X	X	X
IV	Hot	Minimal	Depositional	X	X						X
V	Contaminated	Substantial	Erosive	X	X			X	X	X	X
VI	Contaminated	Minimal	Erosive	X	X					X	X
VII	Contaminated	Substantial	Depositional	X	X	X	X	X	X	X	X
VIII	Contaminated	Minimal	Depositional	X	X	X	X				X
IX	Clean	Substantial	Erosive					X	X	X	X
X	Clean	Minimal	Erosive							X	X
XI	Clean	Substantial	Depositional					X	X	X	X
XII	Clean	Minimal	Depositional								X
Notes:											
(1) Does not consider remediation of source inputs, upland areas, or floodplains.											
(2) Combinations of options should be considered (e.g., in-situ stabilization and dredging).											
(3) Does not consider how remedial options will affect restoration opportunities or vice versa.											
(4) Does not consider the implementability of remedial options with regards to physical constraints (e.g. navigation, structures).											

Clarification

- Development of preliminary remedial options does not yet consider:
 - Remediation of source inputs, upland areas, floodplains
 - Combinations of options
 - Interaction with restoration projects
 - Physical constraints

Needs from Investigations

- Cleanup Criteria:
 - Hot vs. Contaminated vs. Clean
 - Substantial vs. Minimal (Concentration Basis or Mass Basis)
 - Erosive vs. Depositional
- Data to support delineation of above
- External source inputs

Needs from Modelers

- Model changes to baseline from dredging, capping, in-situ remediation, monitored natural recovery
- Estimate level of risk reduction to human and ecological receptors
- Predict effects of contaminant export to and import from Newark Bay

Remedial Option-Specific Needs

- Models or studies to evaluate:
 - Sediment resuspension from debris removal, dredging, and navigation activities
 - Conventional and reactive cap effectiveness
 - In-situ remediation treatment effectiveness
- Models or studies to support interim remedial measures evaluations

Example Interim Remedial Measures (IRMs)

- Hotspot dredging/confined disposal facility
- Hotspot dredging/decontamination
- Silt trap/baffle wall near mouth of river
- Capping
- In-situ stabilization

IRM Considerations

Silt Trap/ Baffle Wall	<ul style="list-style-type: none"> •Effectiveness •Navigation 	<ul style="list-style-type: none"> •Flooding •Habitat Impacts
Hotspot Dredging/ Confined Disposal Facility	<ul style="list-style-type: none"> •Delineation •Facility Siting/ Impacts 	<ul style="list-style-type: none"> •Short-term Dredging Impacts
Hotspot Dredging/ Decontamination	<ul style="list-style-type: none"> •Delineation •Decon Effectiveness 	<ul style="list-style-type: none"> •Facility Siting •Short-term Dredging Impacts
Capping	<ul style="list-style-type: none"> •Cap Location •Cap Material Source 	<ul style="list-style-type: none"> •Flooding •Habitat •Future use Impacts
In-Situ Stabilization	<ul style="list-style-type: none"> •Effectiveness •Habitat Impacts 	<ul style="list-style-type: none"> •Future use

Steps to Remedy Selection

Screen Technologies

Identify Remedial Options

Formulate Alternatives

Evaluate/Compare Alternatives

Select Remedy/Plan



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Multi-Criteria Decision Analysis (MCDA)

- 7 CERCLA Threshold and Balancing Criteria:
 - Overall protection of human health and the environment
 - Compliance with ARARs
 - Long-term effectiveness and permanence
 - Reduction of toxicity, mobility, volume through treatment
 - Short-term effectiveness
 - Implementability
 - Cost
- Other criteria from stakeholders
- Weighting of criteria determined with stakeholder input

Next Steps

- Compile data to support the screening of technologies and assembly of remedial options
- Formally initiate development of remedial action objectives
- Build criteria & weighting for multi-criteria decision analysis
- Identify potential interim remedial measures and develop concept designs